

Application No. 09/481,163
Amendment "A" dated July 11, 2003
Reply to Office Action mailed April 28, 2003

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning on line 14 of page 14 with the following amended paragraph:

Figures 2A and 2B illustrate physical characteristics of an exemplary LCD display device. The portion of LCD 70 depicted in Figure 2A includes a plurality of rows R1-[[R16]]R12 and a plurality of columns C1-C16. Color LCDs utilize multiple distinctly addressable elements and sub-elements, herein referred to as pixels and pixel sub-components, respectively. Figure 2B, which illustrates in greater detail the upper left hand portion of LCD 70, demonstrates the relationship between the pixels and pixel sub-components.

Please replace the paragraph beginning on line 15 of page 18 with the following amended paragraph:

Figure 4 illustrates one example of filtering followed by displaced sampling of image data. Although the generalized example of filtering the image data according to the invention is described below in referenced Figure 5, the filtering in Figure 4 is presented to illustrate the concept of filtering followed by displaced sampling. Image data 200, which is the three-channel, continuous signal having red, green, and blue components 202, 204, and 206, has been passed through a low-pass filter as described above in reference to Figure 3. Filter[[s]] 220a, having in this example a width corresponding to three pixel sub-components, [[are]]is applied to channel 202, which represents the red component of the image. Because the sampled data obtained by filter 220a is applied to a single pixel sub-component, the sampled data, which is shown at 230a, can be referred to as a single sample. Thus, the effective sampling rate according to this embodiment of the invention is one sample per pixel sub-component or three samples per full pixel.

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Please replace the paragraph beginning on line 6 of page 20 with the following amended paragraph:

Exploiting the higher horizontal resolution of a LCD pixel sub-component array can be expressed as an optimization problem. The image data defines a desired array of luminance values having pixel sub-component resolution and color values having full pixel resolution. Based on the image data, the filters can be chosen according to the invention to generate pixel sub-component values that yield an image as close as possible to the desired luminances and colors. To mathematically define the optimization problem, one can mathematically define an error model that measures the error between the perceived output of an LCD pixel sub-component array and the desired output, which as stated above, is defined by the image data. As will be described below, the error model will be used to construct an optimal filter that strikes a desired balance between luminance and color accuracy. One example of a presently preferred approach for defining an error metric and selecting filters that optimize or approximately optimize the error metric is disclosed in U.S. Provisional Patent Application Serial No. [[60/____]] 60/175,811, which is entitled "Optimal Filtering for Patterned Displays," filed on the same day as the present application, and incorporated herein by reference.